

## The consequences of a footnote: typifications and place of first valid publication of two Australian *Abutilon* (Malvaceae) species published by Mueller

R.M. Barker

c/-State Herbarium of South Australia, Botanic Gardens and State Herbarium, North Terrace, 5000, Adelaide, South Australia.

### ABSTRACT

With the addition of a footnote, Mueller invalidated his first publication of two Australian species of *Abutilon*, *A. diplotrichum* and *A. halophilum*. The place of first valid publication is discussed and *A. diplotrichum* is reduced to a subspecies of *A. fraseri*.

### Introduction

Mueller published the names *Abutilon halophilum* and *Abutilon diplotrichum* in *Linnaea* in 1853. However the status of *Abutilon* at that time was questionable and he added a footnote (see Fig. 1) to the effect that *Abutilon* was to be considered a subgenus of *Sida*. In doing so it is concluded that he invalidated the combinations in *Abutilon* and furthermore did not make the combinations in *Sida*.

Under Article 33.1 (Greuter *et al.*, International Code of Botanical Nomenclature, 1994), a combination is not validly published unless the author definitely associates the final epithet with the name of the genus. Clearly Mueller did not definitely associate the epithets with *Sida* by his footnote since nowhere does he mention the precise combinations *Sida halophila* or *Sida diplotricha* in this publication. In a later publication, an account of the plants indigenous to the colony of Victoria (Mueller 1860-2), he does refer to them by these names. However there is no evidence that anybody has ever considered that these were the names being published in the original *Linnaea* article (see for example Australian Plant Name Index, Chapman 1991).

A similar argument cannot be used against combinations in *Abutilon* since the headings above the descriptions are clearly *Abutilon halophilum* and *Abutilon diplotrichum*. As a result this paper in *Linnaea* has always been cited as the first place of publication of these names. However, the footnote is sufficient to suggest that Mueller did not accept his own name and thereby contravened Article 34.1 where a name is not validly published when it is not accepted by the author in the original publication.

### *Sida* or *Abutilon*?

To understand why Mueller was equivocal about the recognition of the two new species as belonging in *Sida* or *Abutilon* requires some understanding of the argument which then existed about the taxonomy of this group.

Prior to Linnaeus's work, Tournefort recognised genera of first rank based on flower and fruit morphology and genera of second rank based on vegetative characters. He was the first to describe *Abutilon* in 1700 on the basis of its fruits and this name was adopted by Miller in his many editions of the *Gardeners dictionary* published between 1721 and 1768. Linnaeus's concept of a genus, based primarily on floral characters, differed from that of Tournefort, and he considered *Abutilon* species to belong under *Sida*. Stearn (1974) gives a very good account of Tournefort and Miller's work in relation to Linnaeus. Linnaeus's concept was followed by Cavanilles (1785) and by de Candolle (1824) in their monographs of the family, but many other authors (e.g.

**20. *Abutilon*\*) *diplotrichum***, fruticulosum, diffusum undique tomento brevi stellari articulo vestitum, pilis longioribus sparse intermixtis, foliis viridulis ovato-vel orbiculato-cordatis obtusis, serraturis subduplicato-crenatis, petiolo aequilongis aut brevioribus, stipulis lineari-filiformibus deciduis, pedunculis tennibus axillaribus solitariis unifloris apicem versus articulatis denique horizontalibus petiolum parum superantibus, calycis quinquefidi lobis subdeltoideis apiculatis, carpidiis circa decem marginem versus puberulis compressis acutis venosis dispermis calycem aequantibus, seminibus albo-puberulis.

In planitiis semisalsis sterilibus propter Cudnaka.

\*) *Sidae* subgenus.

Fig. 1. The footnote published by Mueller in *Linnaea* in 1853.

Gaertner (1791), Kunth (1822) and Walpers (1842, 1851) treated *Abutilon* as distinct from *Sida* because of its pluriovulate rather than uniovulate carpels. Thus there were two schools of thought that persisted for a century without resolution.

Within Australia, the only species now referred to *Abutilon* to be published before those of Mueller were *Abutilon geranioides* (de Candolle 1824) and *Abutilon fraseri* (Hooker 1848); both were published as species of *Sida* belonging to Sect. *Abutilon*.

Thus Mueller's 1853 publication, his first on this group, came at a time when the taxonomic community was divided as to the status of *Abutilon*. It is interesting therefore that in this same paper he described a new genus *Abutilaea* with a single species, *A. cryptantha*, and two years later (Mueller 1855) described a further two species within *Abutilon*, *A. behrianum* and *A. otocarpum*, but this time without reference to *Sida*.

By the 1860's, however, Mueller had changed his mind again. He described three new species within Sect. *Abutilon* of *Sida*, *S. oxycarpa*, *S. leucopetala*, and *S. cryptopetala* (Mueller 1860) and in a discussion including other Australian Malvaceous genera (Mueller 1862) reduced *Abutilon*, *Lawrencia*, *Hoheria*, *Fleischeria* and *Abutilaea* to *Sida* because the 'carpological characters become confluent by many intermediate forms'.

Bentham's two accounts of Malvaceae (Bentham 1862, 1863), in which he recognised *Abutilon* as distinct from *Sida* on the basis of its 2 or more ovules per cell rather than 1 ovule, seem to have convinced Mueller as to the validity of *Abutilon* as a genus. He described a further three new species (Mueller 1875, 1879) as *Abutilon*. There were problems only with *Abutilon lepidum*, which he placed in *Sida* because of the single seed (Mueller 1868), but he clearly recognised its affinities to *Abutilon* since he distributed and annotated specimens under the manuscript name *Abutilon lepidum*.

#### FIRST PLACE OF VALID PUBLICATION

Accepting that the names *Abutilon diplotrichum* and *A. halophilum* were not validly published in *Linnaea*, where was their first place of publication? It was originally thought by the author that the next mention of *A. halophilum* with a clear reference back to the description in *Linnaea* was by Mueller in 1854 in the *Transactions of the Philosophical Society of Victoria* whereas for *A. diplotrichum* the earliest reference was a listing by Karl Mueller (1857) in Walpers *Annales*, a compilation of new species pub-

lished at that time from around the world. Fortunately, the referee consulted Dr Paul Wilson of PERTH, and he was able to point out that the index or 'Register' to *Linnaea* in which the species are clearly listed as species of *Abutilon* would constitute the first place of valid publication of the names *A. diplotrichum* and *A. halophilum*. Since the editor of *Linnaea* at this time was Schlechtendal, the authorship of the name becomes 'F.Muell. ex Schldl.'.

#### STATUS OF *ABUTILON DIPLOTRICHUM* AND *ABUTILON HALOPHILUM*

In my almost completed revision of *Abutilon* for Australia, it has been found that *A. diplotrichum* cannot be maintained at the specific level since it differs from *A. fraseri* (Lindl.) Walp. only in the lack of pubescence on the mericarps. It has consequently been reduced to a subspecies and since the combination is required for the *Flora of Victoria*, this combination is formalised here.

Some doubt has also existed in the past as to the status of *A. halophilum*, since Benth. treated it as a variety of *A. fraseri*. However there is no doubt of its specific status since it differs from that species by its transversely elliptic or very broadly obovate leaves and very much larger fruit. By the structure of its fruit, it is possibly more closely related to the *A. lepidum* complex than to *A. fraseri*.

#### SYNONYMY AND TYPIFICATION

*Abutilon fraseri* (Hook.) Walp. subsp. *diplotrichum* (F.Muell.) R.M.Barker, *comb. et stat. nov.*

*Abutilon diplotrichum* F. Muell. ex Schldl., *Linnaea* 25: 751 (Dec. 1853); *Sida diplotricha* (F.Muell. ex Schldl.) F.Muell., *Fragn.* 2: 11(1860); F.Muell., *Pl. Indig. Colony Vict.* 165(1860-2); Previously published description: *Sida (Abutilon) diplotricha* F.Muell., *Linnaea* 25:380 (1853) *nom. invalid* (since the epithet was not clearly associated with one of the genera). LECTOTYPE (**here designated**): In planitiebus semisalsis sterilibus prope Cudnaka [Kanyaka], Oct. 1847[1851], *F. Mueller s.n.*, MEL516338; ISOLECTOTYPE: MEL516348. - Both sheets have been annotated as '*Abutilon diplotrichum* Ferd. Mueller' and the lectotype sheet was seen by Benth. The lectotype sheet also bears the annotation '*Sida diplotricha*' but this is probably not in Mueller's hand. The date 1847 is clearly erroneous as Mueller's collections from Cudnaka all date from his visit to the Flinders Ranges in 1851 (Grandison 1990). An undated specimen of *A. fraseri* from the Melbourne Botanic Gardens (MEL111380) has been labelled as *Sida diplotricha* by Mueller; it has no type status but demonstrates Mueller's changeable concepts concerning the rank of *Abutilon*.

*Abutilon fraseri* var. *parviflora* Benth., *Fl. Austral.* 1: 205 (1863) *p.p.* only with respect to *Beckler s.n.*, 30 Dec. 1860, Mt Goningberri proper; SYNTYPE: MEL111389, K (Herb. Hooker); ISOSYNTYPE: MEL111388. - Although not from South Australia as cited in the protologue, the syntypes are annotated as *A. diplotrichum* by Mueller and the K specimen has the red pencil determination so characteristic of many of the specimen sheets studied by Benth.

*Abutilon fraseri* var. *diplotrichum* (F.Muell.) Domin., *Biblioth. Bot.* 89: 400 (1928) *nom. illeg.* (var. *parviflora* Benth. cited in synonymy).

*Abutilon halophilum* F.Muell. ex Schldl., *Linnaea* 25: 751(Dec. 1853); *Trans. Phil. Soc. Vict.* 1: 13 (1854); F. Muell. in Hook., *J. Bot. & Kew Gard. Misc.* 8: 10 (1856); Muell. Berol. in Walp., *Ann. Bot. Syst.* 4: 315 (1857); Baker f., *J. Bot.* 31: 268 (1893); A.S. Mitchell, *Fl. Central Australia* 214 (1981); J.G. Reid, *Fl. S. Australia* 2: 824 (1986); A.S. Mitchell & E.H. Norris, *Fl. New South Wales* 1: 332-335 (1990). *Sida halophila* (F.Muell. ex Schldl.) F.Muell., *Pl. Indig. Colony Vict.* 165 (1860-2). *A. fraseri* (Hook.) Walp. var. *halophilum* (F.Muell.) Benth., *Fl. Austral.* 1: 205 (1863). Previously published description: *Sida (Abutilon) halophilum* F.Muell., *Linnaea* 25: 381 (1853); *nom. invalid* (since the epithet was not clearly associated with one of the genera). LECTO-

TYPE (**here designated**): Flinders Range, montem Brown, Nov. 1851, *F. Mueller s.n.* (MEL594392); SYNTYPE: between Flinders Ranges and top of Spencers Gulf, Oct. 1851, *F. Mueller s.n.* (MEL594393); POSSIBLE SYNTYPE OR ISOLECTOTYPE: Spencers Gulf, *s. dat.*, *Anon. s.n.* (MEL112217 p.p., middle specimen only).

### Acknowledgements

Thanks to Paul Wilson, Philip Short and Bill Barker for their comments on this manuscript. This work forms a minor part of a revision of *Abutilon* being carried out under funding from the Australian Biological Resources Survey.

### Bibliography

- Bentham, G. (1862). Notes on Malvaceae and Sterculiaceae. *Journal of the Proceedings of the Linnean Society. Botany* 6: 97-123.
- Bentham, G. (1863). Malvaceae In *Flora Australiensis*. Vol. 1 (L.Reeve & Co.: London.) pp. 184-225.
- Candolle de, A.P. (1824). Malvaceae. In *Prodromus systematis naturalis regni vegetabilis*. 1. (Treuttel & Wurtz: Paris.) pp. 429-474.
- Cavanilles, J (1785). Monadelphiac classis dissertationes decem. Diss. 1. *Dissertatio botanica de Sida*. (F.A.Didot: Paris.)
- Chapman, A.D. (1991). *Australian Plant Name Index. Australian Flora and Fauna Series*. No. 12. (Australian Government Printing Service: Canberra.)
- Gaertner, J. (1791). *De fructibus et seminibus plantarum* 2: 249-251, tab. 134, 135.
- Grandison, R. (1990). The 1851 botanical excursion of Ferdinand Mueller to the Flinders Ranges, South Australia. In P.S.Short (ed.) *History of systematic botany in Australasia*. (Australian Systematic Botany Society Inc.: Melbourne.)
- Greuter, W. (ed.) (1994). *International Code of Botanical Nomenclature. (Tokyo Code)*. (Koeltz: Germany.)
- Hooker, W.D. (1848). In T.L.Mitchell. *Journal of an expedition into the interior of tropical Australia*. (Longman, Brown, Green & Longman: London.) p. 368.
- Kunth, C.S. (1822). Malvaceae. In F.W.H.A. von Humboldt & A.J.A.Bonpland, *Novae Genera et Species plantarum*. 5: 253-308.
- Mueller, F.J.H. (1853). *Linnaea* 25: 381-383.
- Mueller, F.J.H. (1855). Malvaceae In *Transactions of the Philosophical Society of Victoria*. 1: 12-13.
- Mueller, F.J.H. (1860). *Sida cryptopetala*. *Fragmenta phytographiae Australiae*. Vol. 2 (Government Printer: Melbourne.) p. 11.
- Mueller, F.J.H. (1862). *Sida* In *Plants indigenous to the colony of Victoria*. Vol. 1. (Government Printer: Melbourne.) pp. 160-165.
- Mueller, F.J.H. (1868). *Sida lepida*. *Fragmenta phytographiae Australiae* Vol. 6. (Government Printer: Melbourne.) pp. 168-169.
- Mueller, F.J.H. (1875). *Abutilon macrum* and *Abutilon longilobum*. *Fragmenta phytographiae Australiae*. Vol. 9 (Government Printer: Melbourne.) pp. 59, 130.
- Mueller F.J.H. (1879). Malvaceae In *Fragmenta phytographiae Australiae*. Vol. 11 (Government Printer: Melbourne.) pp. 62-63.
- Stearn, W.T. (1974). Miller 's Gardeners dictionary and its abridgement. *Journal of the Society for the Bibliography of Natural History* 7: 125-141.
- Walpers, W.G. (1842). *Abutilon* In *Repertorium botanices systematicae*. 1: 322-327.
- Walpers, W.G. (1851). *Abutilon* In *Annales botanices systematicae* 2: 157-158.

Revised paper received 16 October 1995.